

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended)      A reactor vessel, for generating hydrogen from a hydride solution in presence of a catalyst, the reactor vessel comprising:

a)            ~~at least one~~ a plurality of reaction chambers and ~~at least one~~ a plurality of coolant chambers alternating with one another, each reaction chamber being configured to receive the hydride solution and to bring at least a portion of the hydride solution in contact with the catalyst, each coolant chamber being configured to receive a coolant flow; and

b)            ~~at least one~~ a plurality of reactor plates, each having a first face and a second face in opposing relation with the first face, wherein the first face defines a solution flow field and a portion of each one reaction chamber, and the second face defines a coolant flow field and a portion of one coolant chamber;

c)            wherein each reactor plate is rectangular, and includes a solution inlet and a solution outlet located opposite to one another and in communication with the solution flow field, and a coolant inlet and a coolant outlet located opposite to one another and in communication with the coolant flow field and wherein the solution inlet, the solution outlet, the coolant inlet and the coolant outlet all extend through the plate, for forming distribution ducts from a plurality of similar reactor plates stacked together;

d)            and wherein a plurality of separator plates alternate with the reaction plates, to define the plurality of reaction chambers alternating with the plurality of coolant chambers, each reaction chamber being in fluid communication with an adjacent one of the plurality of reaction chambers and each coolant chamber being in fluid communication with an adjacent coolant chamber, each separator plate including openings providing inlets and outlets to the coolant and the solution aligned with the

solution and coolant inlets and outlets of the reactor plates, whereby distribution ducts are formed extending through the reactor plates and the separator plates to distribute both the solution and the coolant to the reaction and coolant chambers and to collect the solution and the coolant from the reaction and the coolant chambers;

wherein each reactor plate includes gasket grooves on the first and second faces thereof, and a gasket is provided between each pair of adjacent reactor and separator plates, to form seals for the reaction and coolant chambers.

Claim 2 (cancelled)

Claim 3 (currently amended)      The reactor vessel of claim 12, wherein the solution flow field comprises a plurality of solution channels therein and the coolant flow field comprises a plurality of coolant channels.

Claim 4 (original)      The reactor vessel of claim 3, further comprising a catalyst located on at least a portion of the plurality of the solution channels.

Claim 5 (original)      The reactor vessel of claim 4, wherein the catalyst is in pellet form.

Claim 6 (cancelled)

Claim 7 (currently amended)      The reactor vessel of claim 63, wherein the plurality of the solution channels extend from the solution inlet to the solution outlet, and the plurality of coolant channels extend from the coolant inlet to the coolant outlet.

Claim 8 (currently amended)      The reactor vessel of claim 7, wherein the reactor plate is rectangular, the solution inlet and the solution outlet being located proximate to diagonal corners thereof, and the coolant inlet and coolant outlet being located proximate to remaining diagonal corners thereof ~~and wherein the solution inlet, the solution outlet, the coolant inlet and the coolant outlet all extend through the plate, for forming distribution ducts from a plurality of similar reactor plates stacked together.~~

Claim 9 (cancelled)

Claim 10 (cancelled)

Claim 11 (currently amended) The reactor vessel of claim ~~10~~7, wherein the reactor plates and the separator plates are positioned in substantially parallel spaced relationship, thereby forming a stack of the plurality of reactor vessels, and wherein means are provided for clamping the reactor plates and the separator plates together.

Claim 12 (currently amended) The reactor plate of claim ~~8~~11, wherein the solution channels are substantially parallel.

Claim 13 (currently amended) The reactor plate of claim 12, wherein the coolant channels are substantially parallel.

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (cancelled)

Claim 17 (cancelled)

Claim 18 (cancelled)

Claim 19 (cancelled)

Claim 20 (cancelled)

Claim 21 (cancelled)

Claim 22 (cancelled)

Claim 23 (cancelled)

Claim 24 (cancelled)

Claim 25 (cancelled)

Claim 26 (cancelled)

Claim 27 (cancelled)

Claim 28 (currently amended) The ~~system~~ reactor vessel of claim ~~27~~3, wherein the solution flow field comprises a plurality of tortuous channels extending between the solution inlet ~~port~~ and the solution outlet ~~port~~.

Claim 29 (cancelled)

Claim 30 (currently amended) The ~~system~~ reactor vessel of claim ~~28~~9, wherein the coolant flow field comprises a plurality of tortuous channels extending between the coolant inlet ~~port~~ and the coolant outlet ~~port~~.

Claim 31 (cancelled)

Claim 32 (currently amended) A system for generating hydrogen from a hydride solution in presence of a catalyst, the system comprising:

- a) a solution supply means for supplying the hydride solution;
- b) a coolant supply means for supplying a coolant flow; and
- c) a reactor vessel as defined in claim 1. ~~defining a reaction chamber and a coolant chamber, the reaction chamber being in fluid communication with the~~

~~solution supply means, the reaction chamber being configured to bring at least a portion of the hydride solution received from the solution supply means in contact with the catalyst, the coolant chamber being in fluid communication with the coolant supply means; and~~

~~at least one reactor plate having a first face and a second face in opposing relation with the first face, wherein the first face defines a portion of the reaction chamber and the second face defines a portion of the coolant chamber.~~

Claim 33 (currently amended) The system of claim 32, wherein the coolant supply means is configured to control at least one of the temperature and the flow rate of the

Appl. No. 10/016,132  
Amdt. Dated July 6, 2004  
Reply to Office action of February 13, 2004

coolant flow through the coolant chamber, thereby improving control of the temperature of the hydride solution in the reaction chamber.

Claim 34 (cancelled)

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figs. 6 and 8. These sheets, which include Figs. 6 and 8, replace the original sheets including Figs. 6 and 8.

Attachment: Replacement Sheet  
Annotated Sheet Showing Changes